Claims

The claims are amended as follows:

1.   (Currently Amended) A terrestrial digital broadcasting system, comprising:

a broadcasting station for multiplexing video, voice and additional signals into transport stream (TS) and transmitting the TS to the transmitting stations; and

a transmitting stations for receiving the TS and broadcasting the TS to receiving stations through a single frequency network,

wherein the broadcasting station includes:

a transmission synchronization means for inserting a field synchronization header to the TS in a predetermined data field period N, and

wherein the transmitting stations include:

a transmission synchronization detecting means for synchronizing the TS transmitted from the broadcasting station based on the field synchronization header; and

a trellis encoding means for generating initialization symbols of a predetermined length in a predetermined data field period M and synchronizing the TS outputted to the receiving stations,

wherein the trellis encoding means includes:

a first switching unit for initializing output values of a trellis coded modulation (TCM) encoder and ~~the~~ a memory ~~by~~ of the TCM encoder performing switching to ~~input~~ values stored in the memory of the TCM encoder instead of input signals ~~of~~ to the TCM encoder every M period; and

a second switching unit for initializing output values of a precoder and ~~the~~ a memory of the precoder by performing switching to ~~input~~ values stored in the memory of the precoder instead of input signals ~~of~~ to the precoder every M period.

2.   (Cancelled)

3.   (Original) The system as recited in claim 1, wherein the field synchronization header is acquired by reversing a first segment header of data fields of an N period on a bit basis.

4.   (Original) The system as recited in claim 3, wherein the transmission synchronization detecting means recognizes that valid TS is being received, if a field synchronization header of a $B8_{16}$ value is detected in the first segment header and the value of 47_{16} is detected in the segment headers of the other data fields.

5.   (Original) The system as recited in claim 1, wherein the N value is adjusted based on the communication channel environment between the broadcasting station and the transmitting stations, and the M value is adjusted based on the communication channel environment between the broadcasting station and the transmitting stations.

6.   (Currently Amended) A terrestrial digital broadcasting method using a single frequency network, comprising the steps of:
a) inserting a field synchronization header to transport stream (TS) transmitted to a plurality of transmitting stations in a predetermined data field period N in a broadcasting station;
b) detecting the field synchronization header and synchronizing starting points of the TS inputted to each transmitting station in the transmitting stations;
c) synchronizing the TS outputted to receiving stations by generating initialization symbols of a predetermined length every predetermined data field period M with respect to the inputted signal, wherein the initialization symbols are generated by performing switching to input

values stored in a memory of a trellis coded modulation (TCM) encoder and <u>input values stored in a memory of</u> a precoder instead of the inputted signal; and

       d) broadcasting the synchronized TS to the receiving stations.

       7.   (Cancelled).

       8.   (Original) The method as recited in claim 6, wherein the field synchronization header is acquired by reversing a first segment header of data fields of an N period on a bit basis.

       9.   (Original) The method as recited in claim 8, wherein in the step b), if a field synchronization header of a $B8_{16}$ value is detected in the first segment header of the N-period data fields and a field synchronization header of a 47_{16} value is detected in the headers of the other data segments, the transmitting station recognizes that valid TS is received and synchronizes the starting points of the TS inputted to each transmitting station by performing signal processing from a data field where the field synchronization header is detected.

       10.   (Original) The method as recited in claim 6, wherein the N value is adjusted based on communication channel environment between the broadcasting station and the transmitting stations, and the M value is adjusted based on communication channel environment between the broadcasting station and the transmitting stations.